

EVIDENCE FOR DUST TRANSPORT IN VIKING IR THERMAL MAPPER  
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Global maps of  $9\mu\text{m}$  dust opacity derived from radiometric observations made by the Viking Orbiter IR Thermal Mapper instruments have revealed a wealth of new information about the distribution of airborne dust over 1.36 Mars years from 1976 to 1979 [1,2]. In particular, the changing dust distribution during major dust storms is of interest, since the data provide a point, of contact with both earthbased observations of storm growth and with global circulation models .

The set of maps have a time resolution of  $5^\circ$  in  $L_s$  (areocentric solar longitude). necessitated by the need to cover a large area in a single map; they are consequently not ideal for the detailed study of dust transport. A different approach, retaining the full time resolution of the data acquisition process, is to create a set of opacity time histories for selected sites of interest. An example of one of these histories, for a  $10$  by  $10^\circ$  area centered on latitude  $-40^\circ$ , longitude  $180^\circ$ , is shown below for the  $L_s$  range  $200$ - $350^\circ$ . Crosses indicate data from the instrument on Viking Orbiter 1; triangles are from V02. Although it is uncommon to obtain time resolution finer than about one day, and keeping in mind the effect of data. coverage gaps that occur, several interesting points can be established with the set of opacity/time plots. There is a difference in the onset of the 1977b storm between northern and southern latitudes. Opacities remain high far longer at equatorial latitudes than in southern middle latitudes. Opacities at the Viking Lander sites were considerably. smaller than those near the equator or to the south.

[1] Martin, T.Z. (1986), Thermal infrared opacity of the Mars Atmosphere, Icarus 66, 2.

[.2] Martin, T.Z. (1993), New dust opacity mapping from Viking IR Thermal Mapper data, JGR, in press.

$i_{40/180}$

